

REMARKS

Claims 1-37 are pending. Claims 24 and 37 have been amended.

Claims 1-11 and 15-23 were rejected under 35 U.S.C. §102(a) as being anticipated by U.S. Patent Application Publication No. 2003/0030429 ("the '429 Kou publication"), in which the current Applicant is the sole named inventor. Applicant disagrees with those rejections.

Claim 1 recites, among other things: 1) securing an electronic component to a circuit board, 2) recording data indicative of the secured component's exposure to an environmental condition and 3) determining, based on the recorded data, whether the secured component is suitable for exposure to conditions associated with securing a second electronic component to the circuit board.

As was explained in an earlier office action response, populating a circuit board with electronic components sometimes involves: 1) soldering a first component to the circuit board, 2) setting the circuit board (including the soldered first component) aside for some period of time and then, 3) soldering a second component to the same circuit board. An example of that is shown in FIG. 2 where, a first set 206 of electronic components is soldered to a circuit board 202 using a first soldering process (which occurs at area 204). Then, the circuit board 202 (including the soldered first set 206 of electronic components) is set aside for some period of time. *See* page 7, line 28 – page 8, line 5. Subsequently, a second set 212 of electronic components is soldered to the same circuit board 202 (which occurs at area 220). When the circuit board is set aside after the first set 206 of electronic components has been soldered, the secured first set 206 of electronic components may be exposed, for example, to ambient moisture. If that exposure is too great, the secured components may be rendered susceptible to damage when they are later exposed to elevated temperatures when the second set 212 of electronic components is soldered to the same circuit board 202.

Implementations of the method recited in claim 1 may help identify whether an electronic component (after being secured to a circuit board) is exposed to excessive ambient moisture that could render it susceptible to damage when other components are later soldered to the same

circuit board. If a user can determine such susceptibility, that user could take appropriate corrective measures to minimize the risk that electronic components might be damaged by being exposed to the potentially harmful conditions associated with other components being secured to the same circuit board at a later time. The '429 Kou publication neither discloses nor suggests the features recited in claim 1.

Instead, the '429 Kou patent discloses a method of evaluating a set of electronic components prior to those components being installed in an assembly (*e.g.*, a printed circuit board). *See* ¶ 0022; *see also* ¶ 0025. The method includes coupling an environmental condition recorder 202 to a set of electronic components (*e.g.*, tray 326 of components) that are intended for eventual installation into an electronic assembly. *See* ¶ 0033. The electronic condition recorder 202 then collects data indicative of an ambient environmental condition, such as ambient moisture content, over time. *See* ¶ 0023. Prior to installing any of the electronic components from the tray into the printed circuit board, an evaluation 106 is conducted regarding whether those uninstalled components might be susceptible to being damaged by being reflow soldered to the printed circuit board. *See* ¶ 0026. If the electronic components from the set are deemed to be not susceptible to such damage, then at least some of those electronic components can be reflow soldered to the printed circuit board. *See, e.g.*, ¶ 0076.

The '429 Kou publication does not disclose or suggest recording data indicative of a component's exposure to an environmental condition after the component has been installed on a circuit board, as recited in claim 1. Instead, the '429 Kou publication is limited to evaluating a set of electronic components prior to those components being installed.

Moreover, the '429 Kou publication does not disclose determining whether a component that has already been secured to a circuit board might be suitable for exposure to conditions associated with securing a second electronic component to the same circuit board, as is recited in claim 1. As mentioned above, the '429 Kou publication is limited to evaluating a set of electronic components prior to those components being secured to a circuit board. Indeed, the '429 Kou publication does not even mention that making such a determination might be desirable.

Claim 1 should be allowable for at least the foregoing reasons.

Claims 2-11 and 15-23 depend from claim 1 either directly or indirectly and, therefore, should be allowable for at least the same reasons as claim 1.

Claims 24-28 and 30-37 also were rejected under 35 U.S.C. §102(a) as being anticipated by the '429 Kou publication. Applicant has made a minor clarifying amendment to claim 24. Claim 24 is allowable for at least the following reasons.

Claim 24 recites features that are similar to the features recited in claim 1. In particular, claim 24 recites, among other things: 1) reflow soldering a first set of electronic components to a circuit board; 2) subsequently, creating an association between the first set of electronic components and an environmental condition recorder and collecting environmental exposure data with the environmental condition recorder; and 3) evaluating, with the environmental condition recorder, whether each electronic component of the first set is suitable for exposure to environmental conditions associated with reflow soldering a second set of electronic components to the circuit board.

For reasons that are similar to those discussed above with reference to claim 1, the '429 Kou publication neither discloses nor suggests those features.

Therefore, claim 24 should be allowable.

Claims 25-28 and 30-37 depend from claim 24 either directly or indirectly and, therefore, should be allowable for at least the same reasons as claim 24.

Claims 12-14 were rejected under 35 U.S.C. §103(a) as being unpatentable over the '429 Kou publication in view of U.S. Patent No. 5,867,809 (Soga et al.). Applicant disagrees with that rejection.

Claims 12-14 depend directly or indirectly from claim 1, which recites, among other things: 1) securing an electronic component to a circuit board, 2) recording data indicative of the

secured component's exposure to an environmental condition and 3) determining, based on the recorded data, whether the secured component is suitable for exposure to conditions associated with securing a second electronic component to the circuit board. As discussed above, the '429 Kou publication neither discloses nor suggests those features. Nor does the Soga et al. patent disclose or suggest those features.

Instead, the Soga et al. patent discloses a method that includes estimating the remaining life of a printed circuit board based on its use history in an electric appliance and determining whether that printed circuit board should be recycled at the end of the electric appliance's life. (*See* column 1, lines 6-14) The method involves coupling a sensor to the electric appliance (*e.g.*, a household electric appliance, an information apparatus, or an industrial apparatus). The sensor is used to monitor various parameters (*e.g.*, total time in operation and temperature) during the electric appliance's life. *See* column 1, line 66-column 2, line 16.

The Soga et al. patent does not disclose or suggest determining whether an electronic component secured to a circuit board is suitable for exposure to conditions associated with securing a second electronic component to the same circuit board. Indeed, the Soga et al. patent has nothing to do with determining whether an electronic component secured to a circuit board is suitable for exposure to conditions associated with securing a second electronic component to the same circuit board.

Nor would any combination of the '429 Kou publication and the Soga et al. patent disclose or suggest the features included in claims 12-14.

Claims 12-14 should be allowable for at least the foregoing reasons.

Claim 29 also was rejected under 35 U.S.C. §103(a) as being unpatentable over the '429 Kou publication in view of the Soga et al. patent. Applicant disagrees with that rejection.

Claim 29 depends from claim 24, which recites, among other things: 1) reflow soldering a first set of electronic components to a circuit board; 2) subsequently, creating an association between the first set of electronic components and an environmental condition recorder and collecting environmental exposure data with the environmental condition recorder; and 3)

evaluating, with the environmental condition recorder, whether each electronic component of the first set is suitable for exposure to environmental conditions associated with reflow soldering a second set of electronic components to the circuit board. For at least the reasons set forth above, neither the '429 Kou publication nor the Soga et al. patent discloses or suggests those features.

Claim 29 should be allowable for at least the foregoing reasons.

It is believed that all of the pending claims have been addressed. However, the absence of a reply to a specific rejection, issue or comment does not signify agreement with or concession of that rejection, issue or comment. In addition, because the arguments made above may not be exhaustive, there may be reasons for patentability of any or all pending claims (or other claims) that have not been expressed. Finally, nothing in this paper should be construed as an intent to concede any issue with regard to any claim, except as specifically stated in this paper, and the amendment of any claim does not necessarily signify concession of unpatentability of the claim prior to its amendment.

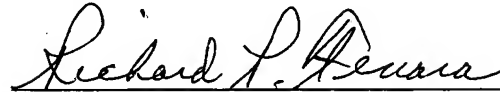
Enclosed is a \$60 check for the petition for extension of time. Please apply any other charges or credits to deposit account 06-1050.

Applicant : Yuen-Foo Michael Kou
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Richard P. Ferrara
Reg. No. 30,632

Fish & Richardson P.C.
Citigroup Center
52nd Floor
153 East 53rd Street
New York, New York 10022-4611
Telephone: (212) 765-5070
Facsimile: (212) 258-2291

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